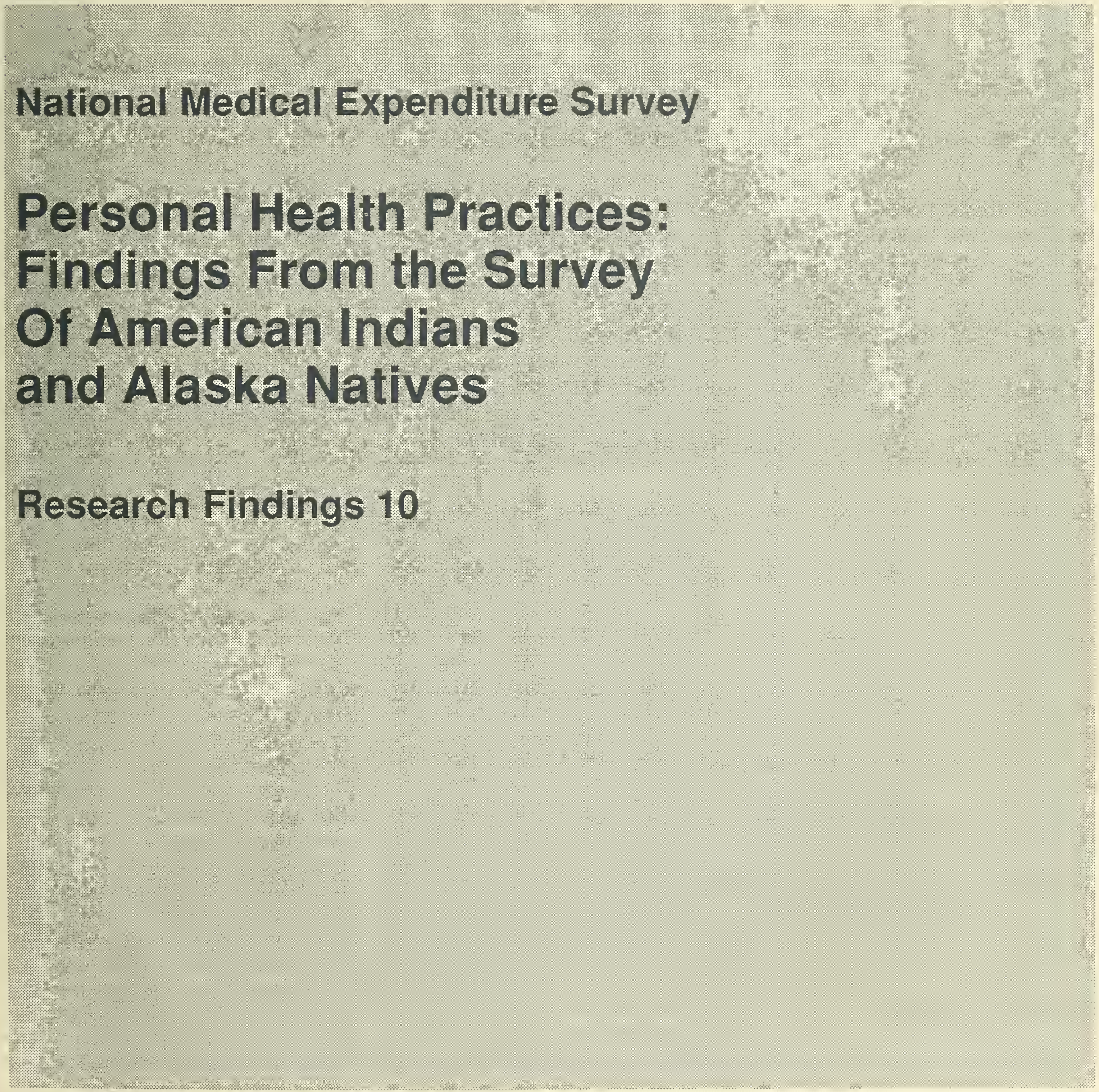
Agency for Health Care Policy and Research

Center for General Health Services Intramural Research



National Medical Expenditure Survey

Personal Health Practices: Findings From the Survey Of American Indians and Alaska Natives

Research Findings 10

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Health Care Policy and Research

MH92D1497

The following is the recommended bibliographic citation for this publication:

Lefkowitz, D., and C. Underwood. (1991, July). *Personal health practices: Findings from the Survey of American Indians and Alaska Natives* (AHCPR Pub. No. 91-0034). National Medical Expenditure Survey Research Findings 10, Agency for Health Care Policy and Research. Rockville, MD: Public Health Service.

Abstract

The Survey of American Indians and Alaska Natives (SAIAN) of the 1987 National Medical Expenditure Survey (NMES) is a representative sample of American Indians and Alaska Natives living on or near reservations and eligible for services provided or supported by the Indian Health Service. This paper uses data from the SAIAN and from the NMES Household Survey to compare this population with the general U.S. population in terms of their use of preventive services, including screening for hypertension and for cervical and breast cancer. The two groups are also compared with regard to the prevalence of smoking and overweight.

July 1991

AHCPR Pub. No. 91-0034

Background

This report from the Division of Medical Expenditure Studies presents results from the 1987 National Medical Expenditure Survey (NMES). The survey provides extensive information on health expenditures by or on behalf of American families and individuals, the financing of these expenditures, and each person's use of services. The National Medical Expenditure Survey is a research project of the Center for General Health Services Intramural Research, Agency for Health Care Policy and Research.

Since the 1970s the intramural research program has given particular emphasis to studies of the use and financing of health services. The first series of studies (NMES I) employed data collected in the 1977 National Medical Care Expenditure Survey. These studies produced information on a broad range of issues such as the number and characteristics of the uninsured and the underinsured, the tax implications of excluding employer-paid premiums for health insurance from employee income, and the differences among socioeconomic and demographic groups with respect to the use of health services.

A new series of studies (NMES II) was initiated in the 1980s. These studies also involve a major data collection effort—the 1987 National Medical Expenditure Survey. Like its predecessor, NMES II provides information about the noninstitutionalized population. In addition and in contrast to the earlier studies, NMES II also provides extensive information on the population residing in or admitted to nursing homes and facilities for the mentally retarded.

The NMES II Household Survey is based on a national probability sample of the civilian, noninstitutionalized population living in the community. The sample is designed to provide a larger representation of population groups of special policy interest to the Federal Government than would have been obtained from a random sample. These groups include poor and low income families, the elderly, the functionally impaired, and black and Hispanic minorities. A Survey of American Indians and Alaska Natives (SAIAN) includes a separate sample of American Indians and Alaska Natives living on or near Federal reservations and eligible to receive care provided or supported by the Indian Health Service. The Institutional Population Component includes a sample of persons residing in or admitted to nursing and personal care homes and facilities for the mentally retarded during 1987. A separate Medicare Records Component provides claims data on all Medicare beneficiaries included in the household and institutional samples.

Together, the major components of NMES II contain information to make national estimates of health status, use of health services, insurance coverage, expenditures, and sources of payment for the civilian population of the United States during the period from January 1 to December 31, 1987. Oversampling of population groups of special interest makes possible in-depth studies of these groups. The data base can also be used to assess the implications of recent or proposed changes in public or private health care benefits, methods of financing both health care and insurance coverage, various public and private subsidies for health care, and employee compensation arrangements.

Household Survey

Each family in the Household Survey was interviewed four times over a period of 16 months to obtain information about the family's health and health care during calendar year 1987. Baseline data on household composition, employment, and insurance were updated at each interview, and information was obtained on illnesses, use of health services, and health expenditures for each family member. A fifth round of interviews was conducted in the spring of 1988 to obtain information on the tax filing status and medical deductions of each household. A long-term care supplement was administered during the first and fourth rounds of interviewing to permit estimates of persons with functional disabilities and the use of formal services or long-term care provided by family or friends.

In order to verify and supplement the information provided by household re-

MH92D1497

spondents, the household component of NMES II included two additional surveys. A Medical Provider Survey obtained information from the physicians, hospitals, outpatient clinics, emergency rooms, and home health agencies used by the household sample during 1987. A Health Insurance Plan Survey obtained information on the private insurance of persons in the household sample, including premiums paid by all sources and the provisions of coverage.

Survey of American Indians and Alaska Natives

This survey was conducted with the same data collection instruments and interview procedures as the Household Survey and covered the same reference period — calendar year 1987. SAIAN also included followup surveys to medical providers and health insurers. Consequently, the data can be used to make comparisons between American Indians and Alaska Natives eligible for care from the Indian Health Service and the general U.S. population with regard to issues such as health status, use of health services, and access to care. Information was obtained on services provided outside the Indian Health Service and on other sources of health care financing available for persons eligible for IHS care.

Institutional Population Component

The Institutional Population Component of NMES II included persons resident in or admitted to nursing and personal care homes and facilities for the mentally retarded at any time in calendar year 1987. This survey provides information on the functional status, use of services, and health expenditures of the institutionalized population. A Survey in Institutions collected data from facility administrators and designated staff on the characteristics of facilities and charges. A Survey of Next of Kin obtained data from the respondent's next of kin or other knowledgeable persons in the community on the financial status, insurance coverage, and personal history of the institutionalized person.

Survey Samples

All survey components were designed to provide statistically unbiased estimates. The Household Survey sample is representative of the civilian noninstitutionalized population of the United States in 1987. It is a stratified multistage area probability design with a total sample of roughly 35,000 individuals in 14,000 households who completed all rounds of data collection. Oversampling of the population subgroups of special policy interest was based on a separate screening interview conducted in the fall of 1986 with a sample of 36,000 addresses.

The Survey of American Indians and Alaska Natives adopted a multistage area probability sample design. It used an IHS constructed frame of counties with individuals eligible for services provided or supported by the Indian Health Service and living on or near federally recognized reservations or in Alaska. An initial screening interview was completed in approximately 13,700 dwelling units to identify the eligible sample, yielding 1990 responding households in round 1. Approximately 6,500 SAIAN respondents responded for their entire period of eligibility in 1987.

The institutional population sample was based on a three-stage probability design. The first two stages were used to select facilities; the final stage sampled facility residents as of January 1, 1987. These facilities were also used to obtain a sample of admissions between January 1, 1987, and December 31, 1987. Based on sampling specifications, the Institutional Population Component includes a total of 1,500 facilities, comprising 800 nursing homes and 700 facilities for the mentally retarded. Counting both residents and new admissions, this sample yielded approximately 10,100 persons, of whom 5,700 were in nursing homes and 4,400 were in facilities for the mentally retarded. The sample frame for facilities was derived from the 1986 Inventory of Long-Term Care Places.

Taken in conjunction, the NMES II surveys yield comprehensive, population-based information that will support studies of most population groups of policy interest, including those presently outside the scope of various public and private financing mechanisms. In contrast to information obtained from program or provider statistics, NMES II data can be used to analyze all public and private sources of coverage for health care services and out-of-pocket payments by individuals and families.

The Agency for Health Care Policy and Research sponsored the NMES II data collection activities. A substantial part of the support for the Survey of American Indians and Alaska Natives was provided by the Indian Health Service. The Health Care Financing Administration, the National Center for Health Statistics, and the Office of the Assistant Secretary for Planning and Evaluation provided extensive technical assistance during the development of the survey design and instruments. Interviews were conducted by the primary contractor, Westat, Inc., Rockville, MD and by NORC, University of Chicago; the Council of Energy Resource Tribes, Denver, CO; and Stephen R. Braund and Associates, Anchorage, AK. Data processing during the analysis stage of the project is being provided by Social & Scientific Systems, Inc., Bethesda, MD.

The data were collected under the authorities of the Public Health Service Act and are being edited and published in accordance with the confidentiality provisions of that act and those of the Privacy Act. Public use tapes from NMES II are being released on a continuous basis to ensure timely access to the data.

Additional information on NMES II is available from Daniel C. Walden, Ph.D., Director of the Division of Medical Expenditure Studies; Center for General Health Services Intramural Research, Agency for Health Care Policy and Research; Room 18-A-55, Parklawn Building; 5600 Fishers Lane; Rockville, MD 20857 (301/443-4836).

Personal Health Practices: Findings From the Survey of American Indians and Alaska Natives

Doris Cadigan Lefkowitz and Carol Underwood

Over the last 50 years, the health of American Indians has improved relative to the U.S. population. In 1940 the gap in life expectancy between American Indians and U.S. whites was 13.2 years; in 1980, it was only 3.3 years (Rhoades, D'Angelo, and Hurlburt, 1986). This improvement is in large part due to a more than 90-percent decrease in the rate of death due to tuberculosis and gastrointestinal disease since 1955 and to substantial reductions in maternal and infant mortality rates. The reasons for these improvements include increased availability of medical services and the development of safe water and sewage disposal programs. American Indians still die from infectious diseases at twice the national rate, but other conditions, principally cardiovascular disease, respiratory disease, cancer, sequelae of alcoholism, diabetes, and unintentional injury, are now important health problems (Rhoades and others, 1987).

Many of these conditions could be prevented by a change in personal habits, or treated if they were detected earlier. In 1979 the Surgeon General issued a report suggesting that future reductions in morbidity and mortality would have to result from improving personal practices detrimental to health such as smoking (Department of Health, Education, and Welfare, 1979). In addition, the U.S. Preventive Services Task Force (1989) has published guidelines for clinical preventive services, recommending screening tests and counseling as appropriate for various age, sex, and risk groups. While numerous recent reports have documented the health practices of the U.S. population in general (Bloom, 1986; Thornberry, Wilson, and Golden, 1986; Dawson, Hendershot, and Bloom, 1987; Schoenborn and Stephens, 1988), little is known about the health practices of American Indians or how they compare to those of the Nation in general.

This report examines the receipt of screening tests for breast and cervical cancer and hypertension, as well as the prevalence of two health-related risk factors—smoking and overweight. The data are from two components of the National Medical Expenditure Survey (NMES). The Survey of American Indians and Alaska Natives (SAIAN) was designed to provide unbiased estimates for American Indians and Alaska Natives eligible for services provided by the Indian Health Service (IHS) and living on or near reservations.[1,2] The Household Survey was designed to provide unbiased national estimates of the civilian noninstitutionalized population. Both surveys are described in Edwards and Berlin (1989). The technical appendix to the present report describes the derivation of the estimates presented, as well as sampling information and standard error estimates. The appendix also gives a brief description of the Indian Health Service.

Screening

Breast examinations. In 1987, women in the general population were more likely than in the SAIAN population to have ever received a breast examination by a medical professional (91.0 percent and 77.9 percent respectively; Table 1). For both groups, there was an age-related decline in the percent of women with such an examination, although the decline begins later for women in the general U.S. population. Overall, 77.9 percent of all SAIAN women had received a breast examination, compared to only 70.4 percent of those ages 50 to 59 and 66.1 percent of those over age 60. In the general population, a statistically significant decline in the prevalence of breast examinations did not occur until age 60 or older.

---

[1] The American Indian and Alaska Native population included in the NMES is a subset of the total U.S. population of American Indians and Alaska Natives. The target population for the Survey of American Indians and Alaska Natives lived on or near federally recognized Indian reservations or in Alaska tribal areas and was eligible for services provided or supported by the Indian Health Service. Thus, while the SAIAN population is in many ways similar to the total American Indian and Alaska Native population, the populations may differ in factors relevant to this report. In particular, many American Indians and Alaska Natives not included in this study were not eligible for the Indian Health Service, lived in areas farther away from federally recognized reservations, or lived in more urban areas than was the case for the SAIAN population. The SAIAN population is described in detail in the technical appendix to this report.

[2] Eligibility for and coverage by the Indian Health Service in the context of this report refers to eligibility for all services provided or supported by the IHS. This encompasses services provided directly by the IHS or American Indian or Alaska Native tribal organizations and services supported by IHS under contracts with other providers.

Table 1. Periodic screening for adult women: Percent in SAIAN and the Household Survey with breast examinations and mammograms, United States, 1987

	SAIAN population (women)[a]			Total U.S. population (women)		
Population characteristic	Total	Breast exam	Mammogram	Total	Breast exam	Mammogram
	Thousands	Percent		Thousands	Percent	
Total[b]	272	77.9	14.8	90,964	91.0	28.8
Age in years						
18 to 29	87	78.9	6.9	24,457	90.0	8.0
30 to 39	65	88.1	11.9	19,807	94.8	21.8
40 to 49	46	78.9	28.6	13,781	94.0	45.4
50 to 59	33	70.4	18.6	11,452	92.8	48.0
60 or older	45	66.1	17.4	21,467	85.8	38.0
Education in years						
0 to 11	111	67.9	10.6	21,565	83.8	25.0
12	97	84.6	15.2	35,456	92.0	29.1
More than 12	56	85.9	21.0	33,049	94.9	31.1
Marital status						
Never married	53	72.4	7.0	16,177	85.2	11.4
Married	150	81.3	17.5	52,848	94.2	33.4
No longer married	69	74.8	15.0	21,856	87.5	30.6
Health status						
Excellent or good	189	79.3	14.1	71,175	92.1	27.8
Fair or poor	83	74.5	16.6	19,788	86.9	32.4

[a] American Indians and Alaska Natives living on or near reservations and eligible for IHS.
[b] Includes persons of unknown educational attainment.
Source: Agency for Health Care Policy and Research. National Medical Expenditure Survey—Survey of American Indians and Alaska Natives and Household Survey.

Although American Indian and Alaska Native women in the SAIAN were less likely than women in the general population to report breast examinations, patterns associated with education and marital status were similar. In both populations, those with less than a 12th grade education were significantly less likely than those with a high school education or above ever to have received a breast examination. For both U.S. women as a whole and for those in the SAIAN, being married was associated with higher rates of breast examination.

Mammograms. American Indian and Alaska Native women of all ages were less likely than women in general to have ever received a mammogram (Table 1). Overall, SAIAN women were nearly half as likely as women in the general population to receive a mammogram (14.8 percent and 28.8 percent, respectively). In the age groups for whom annual mammography is generally recommended (over age 50),[3] this difference was particularly pronounced. Less than 20 percent of American Indian and Alaska Native women ages 50 or older had received a mammogram, while in the general population 48 percent of women ages 50 to 59 and 38 percent of women 60 or older had received at least one mammographic examination. In the general population there was no difference in these rates between women ages 40 to 49 and those ages 50 to 59. In the SAIAN population, however, women ages 40 to 49 years were more likely to have had a mammogram than those ages 50 to 59 years. For both populations, higher education and being married were associated with higher rates of mammograms.

Papanicolaou testing. Although there is debate in the medical community about the recommended frequency of Papanicolaou (Pap) testing for cervical cancer,[4] there appears to be public acceptance of the importance of screening for this disease. Nearly 83 percent of SAIAN women, and over 90 percent of all women in the U.S. have had at least one Pap test in their lifetime (Table 2). Within both populations, rates of screening were high for those ages 18 to 49, but dropped off at ages 50 to 59 for American Indian and Alaska Native women and at age 60 or older for the general female population. For both the SAIAN and the general population, having more than a 12th grade education and being currently married were associated with higher rates of screening.

---

[3] The American Cancer Society (1988), the National Cancer Institute (1987), the American Medical Association (1988), the American College of Obstetrics and Gynecology (1985), and the American College of Radiology (1982) all recommend a baseline mammogram between ages 35 and 40, annual or biennial mammogram from 40 to 50, and an annual mammogram beginning at age 50.

[4] The U.S. Preventive Services Task Force (1989) recommends Papanicolaou testing every 1 to 3 years, while the American College of Obstetrics and Gynecology (1985) recommends annual testing.

Hypertension. In 1988, the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure recommended sphygmomanometry at least once every year or two for persons with normal blood pressure. Under the more stringent annual standard, 73.7 percent of adults in the general U.S. population and 68.6 percent of adult American Indians and Alaska Natives had been screened for hypertension (Table 3). There were few differences between the SAIAN and the general population. In both groups, having one's blood pressure measured in the last year was more common among persons over age 40, women, and those in fair or poor health. These characteristics are usually associated with greater use of health services in general.

Health-Related Risk Factors

Smoking. Although there was no difference between adults in the SAIAN and the general U.S. population in the proportion of persons who never smoked during their lifetime, adult American Indians and Alaska Natives were somewhat more likely to be current smokers and less likely to have stopped smoking (Table 4). Overall, 27.1 percent of the adult general population and 32.8 percent of the adult SAIAN population were current smokers in 1987. Only 16.9 percent of persons in SAIAN compared to over 22 percent of the general U.S. population were former smokers. While the smoking behavior of women was similar in both populations, men in the SAIAN were more likely to smoke than men in the general population. Nearly 38

Table 2. Periodic screening for adult women: Percent in SAIAN and the Household Survey with a Papanicolaou (Pap) test, United States, 1987

Population characteristic	SAIAN population (women)[a]		U.S. population (women)	
	Total	Pap test	Total	Pap test
	Thousands	Percent	Thousands	Percent
Total[b]	272	82.6	90,964	90.6
Age in years				
18 to 29	87	85.5	24,457	90.0
30 to 39	65	92.4	19,807	96.2
40 to 49	46	86.4	13,781	94.8
50 to 59	33	75.8	11,452	92.4
60 or older	45	64.4	21,467	82.5
Education in years				
0 to 11	111	74.0	21,565	83.7
12	97	88.1	35,456	91.8
More than 12	56	91.4	33,049	94.3
Marital status				
Never married	53	76.5	16,177	84.0
Married	150	87.3	52,848	94.4
No longer married	69	77.0	21,856	86.3
Health status				
Excellent or good	189	84.0	71,175	92.0
Fair or poor	83	79.2	19,788	85.5

[a] American Indians and Alaska Natives living on or near reservations and eligible for IHS.

[b] Includes persons of unknown educational attainment.

Source: Agency for Health Care Policy and Research. National Medical Expenditure Survey—Survey of American Indians and Alaska Natives and Household Survey.

Table 3. Blood pressure screening for adults: Percent in SAIAN and the Household Survey with a blood pressure reading in the last 12 months, United States, 1987

Population characteristic	SAIAN population[a] Total	SAIAN population[a] Blood pressure reading	U.S. population Total	U.S. population Blood pressure reading
	Thousands	Percent	Thousands	Percent
Total[b]	522	68.6	172,372	73.7
Age in years				
18 to 40	310	63.1	89,586	69.2
41 to 64	157	75.3	56,332	75.8
65 or older	55	81.0	26,454	84.4
Sex				
Male	251	62.1	81,409	67.5
Female	271	74.6	90,964	79.2
Education in years				
0 to 11	215	66.9	40,278	72.2
12	183	67.9	63,783	71.9
More than 12	109	73.4	66,522	76.6
Health status				
Excellent or good	376	66.2	137,741	71.8
Fair or poor	146	74.9	34,632	81.2

[a] American Indians and Alaska Natives living on or near reservations and eligible for IHS.

[b] Includes persons of unknown educational attainment.

Source: Agency for Health Care Policy and Research. National Medical Expenditure Survey—Survey of American Indians and Alaska Natives and Household Survey.

percent of male American Indians and Alaska Natives smoked in 1987, compared to 29.5 percent of men in the general population. Men in the SAIAN were also less likely than men in the general population to have stopped smoking (18.8 percent versus 27.3 percent). There was no association between current smoking status and education in the SAIAN population; in the U.S. population as a whole, college education was associated with lower rates of smoking.

Overweight. Overweight, as measured by the percent deviation from ideal weight (upper limit of medium frame, using the 1983 Metropolitan Standard Life Tables) was more prevalent among American Indians and Alaska Natives than in the U.S. population. Using these standards, 25 percent of both adult men and women in the SAIAN weighed in excess of 120 percent of ideal weight (Table 5), compared to approximately 18 percent of men and 15 percent of women in the general U.S. population. For the latter, education varied inversely with overweight; in the SAIAN population, however, education had no obvious effect. For both populations, those in fair or poor health were more likely to weigh in excess of 120 percent of ideal weight than those in excellent or good health.

Summary

On several measures of personal health practices, American Indians and Alaska Natives fell short in comparison to the general U.S. population. However, similar characteristics affected compliance with recommended practices in both populations. Screening for breast and cervical cancer was associated with higher levels of education and being currently married. Rates of screening declined with age, especially for American Indian and Alaska Native women. Because these numbers represent the percent of persons who were screened at least once, they are in fact a generous "upper bound" measure of compliance with screening practices such as those recommended by the U.S. Preventive Services Task Force (1989).

In both populations, those having their blood pressure measured in the last year were those most likely to have had some contact with the medical care system—older persons and those in fair or poor health. Thus, persons in the SAIAN and in the Household Survey who do not

Table 4. Smoking habits among adults: Persons in the SAIAN and the Household Survey by current smoking status, United States, 1987

Population characteristic	SAIAN population[a]				U.S. population			
	Total	Never smoked	Former smoker	Current smoker	Total	Never smoked	Former smoker	Current smoker
	Thousands	Percent[b]			Thousands	Percent[b]		
Total[c]	522	47.3	16.9	32.8	172,372	44.5	22.2	27.1
Age in years								
18 to 40	310	49.2	14.2	34.2	89,586	49.2	15.4	29.6
41 or older	212	44.7	20.8	30.7	82,786	39.3	29.6	24.4
Sex								
Male	251	40.0	18.8	37.7	81,409	36.4	27.3	29.5
Female	271	54.1	15.1	28.3	90,964	51.7	17.7	25.0
Education in years								
0 to 11	215	48.1	15.9	32.6	40,278	38.3	20.8	32.1
12	183	45.5	17.1	34.5	63,783	42.0	21.4	30.9
More than 12	109	45.9	19.4	32.2	66,522	50.5	24.0	20.7
Health status								
Excellent or good	376	49.4	15.8	31.6	137,741	46.3	21.6	26.3
Fair or poor	146	42.1	19.6	35.7	34,632	37.1	25.0	30.3

[a] American Indians and Alaska Natives living on or near reservations and eligible for IHS.
[b] Percent with unknown smoking habits not displayed but included in population total.
[c] Includes persons of unknown educational attainment.
Source: Agency for Health Care Policy and Research. National Medical Expenditure Survey—Survey of American Indians and Alaska Natives and Household Survey.

use medical care may be at some risk for undetected hypertension.

American Indians and Alaska Natives were more likely to smoke and less likely to be near or under their ideal weight than persons in the general U.S. population. For the latter, those with higher levels of education are more likely to maintain their ideal weight and less likely to smoke. Education had no significant effect on the prevalence of either smoking or overweight among the SAIAN population.

Caution must be exercised in interpreting these comparisons. First, the SAIAN population represents only those living on or near reservations or in Alaska and eligible for services provided or supported by the Indian Health Service. While representing a sizable portion of American Indians and Alaska Natives, this group may differ considerably from those living elsewhere. Second, the data are based on survey responses, either on self-reports or on the reports of proxies, with the latter being more common in the SAIAN. Both self-reports and proxy reports may be affected by social desirability, modesty, culturally based interpretations of certain questions, or simply a lack of understanding of the health practices in question. There are also cultural differences that may affect health practices among American Indians and Alaska Natives, but such hypotheses cannot be explored with these data.

Further, recommendations for screening are based, in part, on disease prevalence, and the pattern of disease among American Indians still differs considerably from the overall U.S. population. For example, deaths from diabetes, tuberculosis, accidents, and liver disease are more common among American Indians and Alaska Natives than among the general population (Indian Health Service, 1988). Screening recommendations based on the disease prevalence patterns of the general U.S. population may not be optimal for the American Indian and Alaska Native population.

Despite these limitations, the data suggest that persons eligible for the Indian Health Service and living near or on reservations are less likely than other Americans to receive screening tests and are more likely to smoke and be overweight. Women in the SAIAN, despite IHS eligibility, seem to have less than optimal coverage with respect to periodic screening for breast and cervical cancer. Although cross-sectional studies such as this

Table 5. Adult weight: Percent deviation from ideal weight among SAIAN and Household Survey populations, United States, 1987

	SAIAN population[a]					U.S. population				
	Total	Percent deviation from ideal weight[b]				Total	Percent deviation from ideal weight[b]			
Population characteristic		<100	100-119	120-139	>140		<100	100-119	120-139	>140
	Thousands	Percent[c]				Thousands	Percent[c]			
Total[d]	522	36.2	35.1	17.1	8.0	172,372	45.4	34.7	11.7	4.6
Age in years										
18 to 40	310	40.0	35.1	14.5	6.6	89,586	53.6	30.1	9.0	4.1
41 to 64	157	26.5	35.6	23.0	11.3	56,332	34.1	40.0	15.8	6.4
65 or older	55	40.0	33.7	14.8	*6.4	26,454	41.4	38.9	11.8	2.8
Sex										
Male	251	30.1	41.2	18.8	6.2	81,409	35.4	44.0	13.5	4.1
Female	271	41.8	29.4	15.4	9.5	90,964	54.3	26.4	10.1	5.1
Education in years										
0 to 11	215	36.1	33.4	17.4	8.5	40,278	40.2	34.7	13.6	6.1
12	183	37.9	34.6	17.4	6.2	63,783	45.1	34.8	12.1	4.5
More than 12	109	34.3	38.4	16.0	*9.3	66,522	48.7	34.8	10.2	3.8
Health status										
Excellent or good	376	37.9	36.9	15.4	6.5	137,741	47.2	34.9	10.7	3.9
Fair or poor	146	31.8	30.4	21.4	11.6	34,632	38.1	33.8	15.7	7.5

[a] American Indians and Alaska Natives living on or near reservations and eligible for IHS.
[b] Deviation from upper bound if ideal for a medium frame (Metropolitan Life Insurance Co., 1983).
[c] Percent with unknown weight or height not displayed but included in population total.
[d] Includes persons of unknown educational attainment.
*Relative standard error is equal to or greater than 30 percent.
Source: Agency for Health Care Policy and Research. National Medical Expenditure Survey—Survey of American Indians and Alaska Natives and Household Survey.

one cannot determine if the prevalence of smoking and overweight is increasing, high prevalence rates relative to those for the general U.S. population suggest that these risk factors should be a priority for health promotion and disease prevention.

Technical Appendix

A Summary of the Provision of IHS Care

Since 1955, the Indian Health Service within the U.S. Public Health Service has had the responsibility for providing comprehensive health services free of charge to American Indians and Alaska Natives. The population eligible for IHS-provided or supported services consists of persons of American Indian descent belonging to the community served by the local facilities and programs and Alaska Natives resident in Alaska.

The delivery of IHS services is managed by local administrative units called service units. In 1987, there were 127 service units organized around geographically defined areas, usually single reservations in the continental United States or a population concentration in Alaska. Some service units covered a number of small reservations, while some large reservations were divided into several service units. Service units were grouped into 12 larger management jurisdictions called Area Offices. The criteria for grouping service units into Area Offices are based on cultural, demographic, and geographic factors.

At the time of the survey, IHS-funded care was provided in several ways. First, the Indian Health Service directly operated a network of inpatient and ambulatory care facilities in IHS service units across the continental United States and in Alaska. It also provided funding for services and facilities managed by tribes, allowable under the Indian Self-Determination Act of 1975 (P.L. 93-638), as amended. Together, the Indian Health Service and the tribes operated 51 hospitals and over 400 outpatient facilities. Outpatient facilities include health centers and health stations. Health centers are relatively comprehensive outpatient facilities that are open at least 40 hours per week; health stations are available fewer than 40 hours per week and/or offer less comprehensive care.

IHS-funded services were also provided through contract with non-IHS providers. These usually involved specialty services and inpatient care not available through IHS hospitals and clinics. Also, since the Indian Health Service did not have hospitals in all service units, inpatient services in these areas were purchased from non-IHS providers through the contract care program. The eligibility requirements for contract care were somewhat more restrictive than those for direct care, including residency on or near a Federal reservation. (For a more extensive description, see Indian Health Service, 1988.)

Data Sources and Methods of Estimation

The data in this report are from the 1987 National Medical Expenditure Survey. The NMES Household Survey, which describes the general U.S. population, consists of a national probability sample of 14,000 households representative of the civilian, noninstitutionalized population. Estimates in this report were poststratified to the March 1987 Current Population Survey total of the Bureau of the Census. Data describing the American Indian and Alaska Native population derive from the NMES Survey of American Indians and Alaskan Natives. This component consisted of approximately 2,000 households located on or near an Indian reservation with at least one household member eligible for care through the Indian Health Service.

The Household Survey was fielded over four rounds of personal and telephone interviews at approximately 4-month intervals, with a short telephone interview constituting the fifth round. The reference period was calendar year 1987. The SAIAN used comparable instruments to collect data on demographic characteristics, health status, access to health care, insurance coverage, and health care use, expenditures, and sources of payment. The survey consisted of three core interviews, conducted at 5- to 6-month intervals. For detailed information on the survey instruments and data collection strategies, see Edwards and Berlin (1989).

Periodic Screening and Health-Related Information

Health status. Each person was asked in a questionnaire on health status and health behaviors to rate their own health as excellent, good, fair or poor. Most adult respondents answered for themselves in the Household Survey. In the SAIAN, the questionnaire was administered by interviewers (Edwards and Berlin, 1989).

Breast examinations. All female respondents 18 years of age or older were asked, in the health status questionnaire, when they had last had a breast examination by a doctor or other health professional. Respondents could indicate how many years ago, that it had been in the last year, or that they had never had a breast exam.

Mammogram. All female respondents 18 years of age or older were asked whether they had ever had a mammogram. Respondents could answer yes or no.

Papanicolaou test. All female respondents 18 years of age or older were asked how long it had been since they had a Pap smear test. Respondents could indicate how many years ago it had been since their last test, that it had been in the last year, or that they never had a Pap test.

Blood pressure reading. Adult respondents 18 years of age or older were asked if they had their blood pressure checked by a doctor or other medical person within the last year.

Smoking. Adult respondents who reported that they had smoked fewer than 100 cigarettes in their entire life were assigned to the "never smoked" category. Those who had smoked at least 100 cigarettes but did not currently smoke were categorized as "former smokers." Those who continued to smoke constitute the category "current smokers."

Overweight. The weight categories for adult men and women in Table 5 are based on the 1983 Metropolitan Life Insurance desirable weight tables. The percentage deviation from ideal weight calculations were based on the responses to questions about weight (in pounds) and height (in inches). This analysis used a generous interpretation of ideal weight in that the upper limit for a medium frame was used in lieu of the mean. Individuals more than 120 percent of this ideal are considered overweight in this report.

Missing Data

Health status. There were two types of missing data in the health status questionnaire. Persons who did not receive a health status questionnaire or did not respond to a minimum number of essential questions have been excluded from analysis. An additional weighting adjustment was used to correct for the nonresponse.

The second type of missing data was item nonresponse. For the variables in this report, no correction was made for item nonresponse. A separate "unknown" category was created (not displayed in the tables). Item nonresponse for the variables from the health questionnaire ranged from zero to 3.02 percent in the Household Survey and from 8.0 percent to 14 percent in the SAIAN. This difference may at least in part be attributable to the fact that the SAIAN health questionnaire was actually administered by a trained interviewer and not filled out by the respondent, as was the case in the Household Survey. Lack of anonymity may have inhibited some SAIAN respondents from answering certain health related questions.

Education. Each person 17 years of age or older was asked about the highest grade or year of schooling completed. Persons were grouped into three categories: less than a high school education (0-11 years), high school graduate (12 years), and more than 12 years. Item nonresponse for this question was 3.3 percent for SAIAN and 1.3 percent for Household Survey.

Sample Design and Standard Error Estimates

SAIAN

The 1987 Survey of American Indians and Alaska Natives was designed to produce statistically unbiased estimates that are representative of the civilian noninstitutionalized population eligible for the Indian Health Service and living on or near reservations or in Alaska. The survey adopted a multistage area probability sample design using an IHS-constructed frame of counties with individuals eligible for IHS services and living on or near reservations. The sampling frame initially consisted of 482 counties in the U.S. served by the Indian Health Service, with an estimated population of 1,013,000 projected for 1987. For reasons of cost efficiency, the frame was truncated to exclude counties with fewer than 400 American Indians or Alaska Natives. The truncated frame included 97.2 percent of the population of interest.

Twenty-four eligible counties were paired with larger neighboring counties, yielding 274 primary sampling units (PSUs) for sample selection. Within each sample PSU, SAIAN area segments were created. Segments were defined as 1980 census enumeration districts or individual blocks or block combinations. Again, for cost efficiency, the SAIAN sample frame was further restricted by excluding segments with less than 0.5 percent population representation of American Indians and Alaska Natives. Approximately 95 percent of the American Indian and Alaska Native population remained eligible for sample selection when the effects of PSU and segment frame truncation were considered jointly.

In early 1987, an initial screening interview was completed in approximately 13,700 dwelling units to facilitate identification of the eligible sample. Data were obtained for about 87.5 percent of eligible sampled households in the first round of data collection, consisting of 1,990 households and 6,557 civilian noninstitutionalized persons eligible for care through the Indian Health Service. For a detailed description of the survey design, sampling, estimation and weight adjustments, see Cohen, DiGaetano, and Waksberg (1988).

Household Survey

The NMES Household Survey was designed to produce statistically unbiased national estimates that are representative of the civilian noninstitutionalized population of the United States. To this end, the Household Survey used the national multistage area samples of Westat, Inc. and NORC.

An initial screening interview was conducted in the fall of 1986 to facilitate oversampling of population subgroups of particular policy concern (blacks, Hispanics, the elderly, the poor and near poor, and those with difficulties in activities of daily living). Screening interviews were completed in approximately 28,700 dwelling units. Sampling specifications required the selection of about 17,500 households for the first core household interview. Data were obtained for about 85.4 percent of eligible households in the first interview and 80 percent by the fourth interview. Approximately 6 percent of all survey participants provided data for only some of the time in which they were eligible to respond. For a detailed description of the survey design, and of sampling, estimation, and adjustment methods, including weighting for nonresponse and poststratification, see Cohen, DiGaetano, and Waksberg (in process).

Reliability of Estimates

Since the statistics presented in this report are based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken. This potential difference between sample results and a complete count is the sampling error of the estimate.

The chance that an estimate from the sample would differ from a complete census by less than one standard error is about 68 out of 100. The chance that the difference between the sample estimate and a complete census would be less than twice the standard error is about 95 out of 100.

Tests of statistical significance were used to determine whether differences between estimates exist at specified levels of confidence or whether they simply occurred by chance. Differences were tested using Z-scores having asymptotic normal properties, based on the rounded figures at the 0.05 level of significance. Unless otherwise noted, only statistically significant differences between estimates are discussed in the text.

Rounding

Estimates presented in the tables have been rounded to the nearest 0.1 percent or to the nearest thousand. The rounded estimates, including those underlying the standard errors, will not always add to 100 or the full total.

Standard Errors

Standard errors for the statistics in this report were approximated, by interpolation where necessary, using a curve smoothing procedure developed by Cohen (1979). The statistical tests in this report, however, are based on direct estimates of standard errors using the Taylor Series linearization method.

Relative standard errors of totals. Where the statistics of interest are total estimates (*T*) of the population, an estimate of the standard error, *SE*, can be obtained by multiplying the relative standard error, *RSE(T)*, expressed as a percent of the respective total (*T*), by *T* and then dividing by 100. Thus,

$$SE(T) = \frac{T(RSE(T))}{100}$$

For estimated population totals for individuals, the approximate relative standard errors expressed as percents are presented in Tables I and II .

- Example—A rounded estimate of 358,000 adult American Indian and Alaska Natives with a blood pressure measurement in the last 12 months (522,000 x .686, Table 3), has a relative standard error of between 5.1 and 4.3 (Table I) or, by interpolation, a relative standard error of about 4.8 percent. The standard error of this estimate, then, is

$$SE(T) = \frac{358{,}092(4.8)}{100} = 17{,}188$$

Table I. Approximate relative standard errors for the SAIAN population

Estimated population totals for individuals (in thousands)	Relative standard error (in percent)
10	20.2
25	13.0
50	9.5
100	7.1
250	5.1
500	4.3
885	3.9

Table II. Approximate relative standard errors for the total U.S. population

Estimated population totals for individuals (in thousands)	Relative standard error (in percent)
1,000	9.7
2,500	6.6
5,000	5.2
10,000	4.3
25,000	3.6
50,000	3.4
100,000	3.3
200,000	3.2
240,000	3.2

Direct standard error estimates. When the statistic of interest is expressed as a percent of the number of persons, direct estimates of standard errors have been derived for ease of calculation. For the estimated percent of the SAIAN population and the total U.S. population by selected characteristics, approximate standard errors expressed as a percent are presented in Tables III and IV.

- Example—The estimate of 30.1 percent of the SAIAN male population with less than 100 percent deviation from ideal weight is based on a population total of 251,000 (Table 5). This estimate, by interpolation, has a standard error of approximately 1.8 percent (Table III).

Table III. Approximate direct standard errors for the SAIAN population

Persons in the base of the percent (in thousands)	Estimated percent						
	2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	40 or 60	50
10	2.8	4.3	6.0	8.0	9.1	9.8	10.0
25	1.8	2.7	3.8	5.0	5.8	6.2	6.3
50	1.2	1.9	2.7	3.6	4.1	4.4	4.5
100	0.9	1.4	1.9	2.5	2.9	3.1	3.1
250	0.6	.09	1.2	1.6	1.8	2.0	2.0
500	0.4	0.6	0.8	1.1	1.3	1.4	1.4
885	0.3	0.5	0.6	0.8	1.0	1.0	1.1

Table IV. Approximate direct standard errors for the total U.S. population

Persons in the base of the percent (in thousands)	Estimated percent						
	2 or 98	5 or 95	10 or 90	20 or 80	30 or 70	40 or 60	50
1,000	1.3	2.0	2.8	3.7	4.2	4.5	4.6
2,500	0.8	1.3	1.8	2.3	2.7	2.9	2.9
5,000	0.6	0.9	1.2	1.7	1.9	2.0	2.1
10,000	0.4	0.6	0.9	1.2	1.3	1.4	1.5
25,000	0.3	0.4	0.6	0.7	0.8	0.9	0.9
50,000	0.2	0.3	0.4	0.5	0.6	0.6	0.7
100,000	0.1	0.2	0.3	0.4	0.4	0.5	0.5
200,000	0.1	0.1	0.2	0.3	0.3	0.3	0.3
240,000	0.1	0.1	0.2	0.2	0.3	0.3	0.3

References

American Cancer Society. (1988). *Summary of Current Guidelines for the Cancer-Related Checkup: Recommendations.* New York, NY: American Cancer Society.

American College of Obstetrics and Gynecology. (1985). *Standards for Obstetric Gynecologic Services* (6th ed). Washington, DC: American College of Obstetrics and Gynecology.

American College of Radiology. (1982). *Policy Statement: Guidelines for Mammography.* Reston, VA: American College of Radiology.

American Medical Association. (1988). Mammography screening in asymptomatic women 40 years and older (Resolution 93, I-87). Report F(88) to the Council on Scientific Affairs, American Medical Association.

Bloom, B. (1986). *Use of Selected Medical Procedures Associated with Preventive Care, United States, 1982* (DHHS Publication No. (PHS) 86-1585). Hyattsville, MD: National Center for Health Statistics.

Cohen, S. (1979). An assessment of curve smoothing strategies which yield variance estimates from complex survey data. *American Statistical Association: Proceedings of the Section on Survey Research Methods* (pp. 101-104). Alexandria, VA: American Statistical Association.

Cohen, S., R. DiGaetano, and J. Waksberg. (1988). Sample design of the NMES Survey of American Indians and Alaska Natives. *American Statistical Association: Proceedings of the Section on Survey Research Methods* (pp. 740-745). Alexandria, VA: American Statistical Association.

Cohen, S., R. Giaetano, and J. Waksberg. (in process). Sample design of the Household Survey component of the National Medical Expenditure Survey. National Medical Expenditure Survey Methods 3, Agency for Health Care Policy and Research.

Dawson, D.A., G.E. Hendershot, and Barbara Bloom. (1987). Trends in routine screening examinations. *American Journal of Public Health* 77(2), pp. 1004-1005.

Department of Health, Education, and Welfare. (1979) *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* (DHEW Publication No. (PHS) 79-55071). Washington, DC: U.S. Government Printing Office.

Edwards, W., and M. Berlin. (1989). *Questionnaires and data collection methods for the Household Survey and the Survey of American Indians and Alaska Natives* (DHHS Publication No. (PHS) 89-3450). National Medical Expenditure Survey Methods 2, National Center for Health Services Research and Health Care Technology Assessment. Rockville, MD: Public Health Service.

Indian Health Service. (1988). *Chart Series Book.* Rockville, MD: Public Health Service.

Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure. (1988). The 1988 Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure. *Archives of Internal Medicine* 148(5), pp. 1023-1038.

Metropolitan Life Insurance Co. (1983). 1983 Metropolitan height and weight tables. *Statistical Bulletin* 62, pp. 2-9.

National Cancer Institute. (1987). *Working Guidelines for Early Detection: Rationale and Supporting Evidence to Decrease Mortality.* Bethesda, MD: National Cancer Institute.

Rhoades, E. R., A.J. D'Angelo, and W.B. Hurlburt. (1986). The Indian Health Service record of achievement. *Public Health Reports* 101(4), pp. 282-288.

Rhoades, E.R., J. Hammond, T.K. Welty, A.O. Handler, and R.W. Amler. (1987). The Indian burden of illness and future health interventions. *Public Health Reports* 102(4), pp. 361-368.

Schoenborn, C. A., and T. Stephens. (1988). Health promotion in the United States and Canada: Smoking, exercise and other health related behaviors. *American Journal of Public Health* 78(8), pp. 983-984.

Thornberry, O.T., R.W. Wilson, and P.M. Golden. (1986). *Health Promotion Data for the 1990 Objectives: Estimates From the National Health Interview Survey of Health Promotion and Disease Prevention: United States, 1985* (DHHS Publication No. (PHS) 86-1250). Hyattsville, MD: National Center for Health Statistics.

U.S. Preventive Services Task Force. (1989). *Guide to Clinical Preventive Services: An Assessment of the Effectiveness of 169 Interventions.* Baltimore, MD: Williams and Wilkins.

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO. AHCPR 91-31

2.

3. Recipient's Accession No. PB91-220269

4. Title and Subtitle
Personal Health Practices: Findings From the Survey of American Indians and Alaska Natives

5. Report Date July 1991

6.

7. Author(s) D. Lefkowitz & C. Underwood

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
DHHS, PHS, Agency for Health Care Policy and Research (AHCPR)
Center for Research Dissemination and Liaison
18-12 Parklawn Building, Rockville, MD 20857
Tel: 301/443-4100

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G) N/A

12. Sponsoring Organization Name and Address
same as above

13. Type of Report & Period Covered inhouse

14.

15. Supplementary Notes

National Medical Expenditure Survey Research Findings 10

AHCPR Pub. No. 91-0034

16. Abstract (Limit: 200 words)

The Survey of American Indians and Alaska Natives (SAIAN) of the 1987 National Medical Expenditure Survey (NMES) is a representative sample of American Indians and Alaska Natives living on or near reservations and eligible for services provided or supported by the Indian Health Service. This paper uses data from the SAIAN and from the NMES Household Survey to compare this population with the general U.S. population in terms of their use of preventive services, including screening for hypertension and for breast and cervical cancer. The two groups are also compared with regard to the prevalence of smoking and overweight.

17. Document Analysis a. Descriptors
AHCPR publication of research findings does not necessarily represent approval or official endorsement by the Agency for Health Care Policy and Research or the U.S. Department of Health and Human Services.

b. Identifiers/Open-Ended Terms

National Medical Expenditure Survey; American Indians; Alaska Natives; health services research; health-related risk factors; health practices; screening

c. COSATI Field/Group

18. Availability Statement:
Releasable to the public. Available from the
National Technical Information Service
Springfield, VA 22161 Tel: 703/487-4650

19. Security Class (This Report) unclassified

20. Security Class (This Page) unclassified

21. No. of Pages 14

22. Price

(See ANSI–Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4–77)
(Formerly NTIS–35)
Department of Commerce

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES

Public Health Service
Agency for Health Care Policy and Research
Parklawn Building, Room18-12
5600 Fishers Lane
Rockville, Maryland 20857

AHCPR Pub. No. 91–0034
July 1991